



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/591,886

04/26/2007

Norwin W. Wolff

0003.2001-003

6951

21005

7590

12/05/2008

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

530 VIRGINIA ROAD

P.O. BOX 9133

CONCORD, MA 01742-9133

EXAMINER

TISCHLER, FRANCES

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

12/05/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/591,886	<b>Applicant(s)</b> WOLFF ET AL.	
	<b>Examiner</b> FRANCES TISCHLER	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4,7,8,10-12,14-16,18,19,21-24,28,31,41-45,53-56 and 58 is/are pending in the application.
- 4a) Of the above claim(s) 62,63,65,66,70-73,79-82,85 and 89 is/are withdrawn from consideration.
- 5) ☒ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,7,8,10-12,14-16,18,19,21-24,28,31,41-45,53-56 and 58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/28/07</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 62, 63, 65, 66, 70 - 73, 79 – 82, 85 and 89 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/15/08. The requirement for an election of species set forth in the previous office action is not applicable to the elected invention.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 4, 7, 8, 10, 11, 19, 21, 24, 28, 31 and 43 – 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Cahill et al (US 5,998,500).**

Cahill discloses (abstract, 3:34 – 48, 4:9 – 15, claim 1) a bimodal polymer composition comprising at least two polymers, polymer I with anionic character and polymer II with cationic character, forming an interpenetrating polymer network (IPN), reading on Applicant's claim 1.

Art Unit: 1796

The interpenetrating polymer is defined as one of the polymers being synthesized in the presence of the other (4:9 – 15). The starting materials can be monomers, or low MW oligomers or polymers (4:53 – 57). Polymer 1 comprises (table in columns 4 and 5, claim 6) carboxylate salt monomer units forming polyacrylic acid, polymethacrylic acid, polyacrylate, polymethacrylate, polyethylenesulfonate, etc., reading on Applicant's claims 4 and 31.

Cahill's cationic polymer II comprises (table in column 4 and 5, claim 7) ammonium derivative monomer units such as dimethylaminoethyl methacrylate, quaternized adduct thereof, etc., reading on Applicant's claims 8, 10, 11 and 24.

Regarding claims 7, 28, 43 and 44: Cahill discloses (5:28 – end, 6:16 - 20) that the polymers do not need to be fully functionalized as anionic and cationic, instead incomplete functionalized polymers can be used to adjust the ionic interactions involved in forming the IPN. Cahill discloses 10 – 35 weight% of polymer I and 10 – 35 weight% of polymer II, which may be made either purely of anionic or cationic monomer units, respectively, or in combination with other unfunctionalized monomer units, the former reading on Applicant's percentage of anionic and cationic units of claims 7 and 28. Cahill's percentages also read on applicant's 10 – 90% concentration of the first and the second polymers of claims 43 and 44.

Cahill discloses (6:28 – 34) that the IPN can be modified to meet specific manufacturing needs, such as complexing with polyacrylic acid or branched polyethyleneimine, reading on Applicant's cross-linking or multifunctional units of claims 19 and 21.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claim 45 is rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 103(a) as obvious over Cahill et al (US 5,998,500).**

Since Cahill's polymers comprise substantially identical composition as claimed by Applicant, it will inherently have the same Tg as claimed by Applicant. Alternatively, Cahill discloses (6:43 – 51) that the glass transition temperature can be controlled by selecting the polymers used. Therefore, it would have been obvious to one of ordinary skill in the art to have optimized the percentages of each monomer or used certain combination of monomers or polymers from the

Art Unit: 1796

list of monomers or polymers disclosed by Cahill and claimed by Applicant to arrive at the same Tg as claimed by Applicant.

**Claims 1, 4, 8, 10 - 12, 14 – 16, 18, 19, 21 - 24, 28, 31, 41 - 45, 53 – 56 and 58 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 103(a) as obvious over Schehlmann et al (US 6,482,394).**

Schehlmann discloses (abstract, 2:1 – 7) hair treatment compositions comprising at least one anionic and at least one cationic polymer, such as carboxyl groups and quaternary amine groups, respectively. Schehlmann is silent in naming the composition an “interpenetrating polymer network” (or IPN). However, since Schehlmann’s polymer composition containing the cation is made from various monomers and combined with the anion polymer which defines an IPN, and it is made in the same manner and with the same monomer units as claimed by applicant, (3:9 – 28, 7:45 – end, 8:1 – 30), it is inherently an interpenetrating polymer network, reading on Applicant's claim 1. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicant to show otherwise. Additionally, it is the examiner’s position that this is further evidenced by Cahill’s disclosure set forth above where Cahill defines an IPN as one polymer being synthesized in the presence of the other polymer, with one polymer having anionic character and the other having cationic character (4:9 – 15, 4:53 - 57), where the process and the resulting bimodal

Art Unit: 1796

polymer, which is stable because of its ionic interactions, is substantially identical to Schehlmann's disclosure.

Schehlmann discloses that the anionic polymer comprises (7:45 – end, 8:1 – 30) carboxyl groups, acrylic or methacrylic acid and salts thereof, fumaric acid and anhydrides, sulfonic groups, itaconic anhydride, etc., reading on Applicant's claims 4 and 31.

The cationic polymer comprises (columns 2, 3, 4:1 – 12, 7:1 - 34) dialkyl amino alkyl methacrylates, unmodified or quaternized, such as dimethylaminoethyl methacrylate, and various other monomers, reading on Applicant's claims 8, 10, 11 and 24. Preferably, 2 – 50% of the cationic polymer composition comprises cationic monomers (3:9 – 14), reading on Applicant's percentages in claim 28.

The cationic polymer also comprises water insoluble monomer units such as esters of (meth)acrylic acid, including butyl methacrylate (4:24 – 31), reading on Applicant's claims 12, 14, and 15.

The cationic polymer also comprises (3:15 – 18, 4:14 – 22) a water soluble monomer, such as hydroxypropyl methacrylate, reading on Applicant's claims 16 and 18.

The composition comprises (3:23 – 27, 4:32 – 50) polyfunctional monomer units with crosslinking functionality such as acrylates and methacrylates, reading on Applicant's claims 19 and 21.

The cationic polymer also comprises monomers of anionic functionality such as acrylic acid, methacrylic acid and esters thereof (4:24 – 31), reading on Applicant's claims 22 and 23.

Schehlmann discloses (8:7 – 12) grafting the methacrylate with an alkylene glycol, reading on Applicant's alcohol as a chain modifier for the first polymer in claims 41 and 42.

Applicant claims 10 – 90 weight % of the first polymer and 10 – 90 wt% of the second polymer. Schehlmann discloses (table 1 and table 2) using 1:0.5 and a 1:1 ratios of Luvimer:luviquat (anionic and cationic polymers), which reads on Applicant's broad concentration range for the two polymers in claims 43 and 44.

Regarding claim 45: Schehlmann is silent on the Tg of the composition. However, since Schehlmann's composition is substantially identical to Applicant's claimed composition, it will inherently have the same Tg as claimed by applicant. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicant to show otherwise. Alternatively, it would have been obvious to one of ordinary skill in the art to have optimized the percentages of each monomer or used certain combination of monomers or polymers from the list of monomers or polymers disclosed by Schehlmann and claimed by Applicant to arrive at the same Tg as claimed by Applicant.

The bimodal polymer is used as sprays and foam for hair treatment (1:8 – 23), reading on Applicant's personal care fixative of claim 53. It includes alcohol as a volatile solvent in amounts of 55 and 80% (8:32 – 47), reading on Applicant's claims 54 and 55, neutralizing agents and alcohols (8:32 – 51),



Art Unit: 1796

reading on Applicant's claim 56, and colorants, preservatives, emulsifiers, fragrances, stabilizers, etc. (8:52 – 56), reading on claim 58.

***Claim Rejections - 35 USC § 103***

**Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schehlmann et al (US 6,482,394) in view of Cahill et al (US 5,998,500).**

Cahill's and Schehlmann's disclosure is discussed above and is incorporated herein by reference.

Schehlmann is silent on the weight percentage of the carboxylate salt monomer units. Cahill discloses that the polymers do not need to be fully functionalized as anionic and cationic, instead incomplete functionalized polymers can be used to adjust the ionic interactions involved in forming the IPN. Therefore, it would have been obvious to one of ordinary skill in the art to have added additional monomers without the anionic functionality to the anionic polymer in Schehlmann's composition to adjust the ionic interactions involved in forming the interpenetrating network polymer as explained by Cahill.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCES TISCHLER whose telephone number is (571)270-5458. The examiner can normally be reached on Monday-Friday 7:30AM - 5:00 PM; off every other Friday.

Art Unit: 1796

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/  
Primary Examiner, Art Unit 1796

Frances Tischler  
Examiner  
Art Unit 1796

/FT/